PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

| Applicant's or agent's file reference 2004P18487WO | FOR FURTHER ACTION | See item 4 below |
|---|--|--|
| International application No. PCT/EP2005/053790 | International filing date (day/month/year) 03 August 2005 (03.08.2005) | Priority date (day/month/year) 03 November 2004 (03.11.2004) |
| International Patent Classification (8th See relevant information in Form F | n edition unless older edition indicated) PCT/ISA/237 | |
| Applicant SIEMENS AKTIENGESELLSCHA | FT | |

| 1. | This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a). | | | | |
|--------------------------------|---|--|--|--|--|
| 2. | This REPORT consists of a total of 6 sheets, including this cover sheet. | | | | |
| : | In the attached sheets, any refer to the international preliminary | ence to the written opinion of report on patentability (Chapt | the International Searching Authority should be read as a reference er I) instead. | | |
| 3. | This report contains indications | relating to the following item | s: | | |
| | Box No. I | Basis of the report | | | |
| | Box No. II | Priority | | | |
| | Box No. III | Non-establishment of opinapplicability | nion with regard to novelty, inventive step and industrial | | |
| | Box No. IV | Lack of unity of invention | | | |
| | Box No. V | Reasoned statement under applicability; citations and | · Article 35(2) with regard to novelty, inventive step or industrial describing such statement | | |
| | Box No. VI | Certain documents cited | | | |
| | Box No. VII | Certain defects in the inter | rnational application | | |
| | Box No. VIII | Certain observations on the | e international application | | |
| 4. | The International Bureau will conot, except where the applicant date (Rule 44bis .2). | ommunicate this report to desi makes an express request und | ignated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but cr Article 23(2), before the expiration of 30 months from the priority | | |
| | | | | | |
| | | | Date of issuance of this report 08 May 2007 (08.05.2007) | | |
| | The International Bure 34, chemin des Col 1211 Geneva 20, Sv | ombettes | Authorized officer Yolaine Cussac | | |
| Facsimile No. +41 22 338 82 70 | | | e-mail: pt11.pct@wipo.int | | |

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

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| | see form | PCT/ISA/220 | | WRITT | TEN OPINION OF THE |
| | • | _ | | | VAL SEARCHING AUTHORITY |
| | | | | (F | PCT Rule 43bis.1) |
| | | | | Date of mailing | |
| | | | | (day/month/year) see | e form PCT/ISA/210 (second sheet) |
| | icant's or agent's file form PCT/ISA/22 | | | FOR FURTHER A See paragraph 2 below | |
| Inter | national application I | No | | | |
| | T/EP2005/053790 | | International filing date (c 03.08.2005 | iay/montn/year) | Priority date (day/month/year) 03.11.2004 |
| l | national Patent Class L29/06, H04M7/ | • | both national classification | and IPC | |
| Appl | icant | | | | |
| SIE | MENS AKTIENC | BESELLSCHAI | FT | | |
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| 1. | This opinion co | ontains indication | ons relating to the follo | owing items: | • |
| | Box No. I | Basis of the op | inion | | |
| | 🛛 Box No. II | Priority | | | |
| | ☐ Box No. III | Non-establishn | nent of opinion with rega | ard to novelty, inventiv | e step and industrial applicability |
| | ☐ Box No. IV | Lack of unity of | f invention | | |
| | ⊠ Box No. V | Reasoned state applicability; cit | ement under Rule 43 <i>bis</i> tations and explanations | .1(a)(i) with regard to a supporting such state | novelty, inventive step or industrial ement |
| | ☐ Box No. VI | Certain docum | ents cited | | |
| | ☐ Box No. VII | Certain defects | in the international app | lication | |
| | ☐ Box No. VIII | Certain observ | ations on the internation | al application | |
| 2. | FURTHER ACTI | ON | • | | |
| | the applicant cho | f the Internationa poses an Authori eau under Rule | al Preliminary Examining itv other than this one to | a Authority ("IPEA"). H be the IPEA and the d | usually be considered to be a owever, this does not apply where chosen IPEA has notifed the ional Searching Authority |
| - | submit to the IPE | EA a written reply date of mailing of | v together, where appro- | priate, with amendmer | PEA, the applicant is invited to nts, before the expiration of three of 22 months from the priority date, |
| , | For further option | ns, see Form PC | T/ISA/220. | | |
| 3. | For further details | s, see notes to f | Form PCT/ISA/220. | | • |
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| Name | e and mailing address | s of the ISA: | | Authorized Officer | |



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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No. PCT/EP2005/053790

| _ | Box | No. I Basis of the opinion | | | |
|----|---|--|--|--|--|
| _ | | | | | |
| 1. | With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item. | | | | |
| | | This opinion has been established on the basis of a translation from the original language into the following anguage , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)). | | | |
| 2. | With nece | regard to any nucleotide and/or amino acid sequence disclosed in the international application and ssary to the claimed invention, this opinion has been established on the basis of: | | | |
| | a. ty | pe of material: | | | |
| | | a sequence listing | | | |
| | | table(s) related to the sequence listing | | | |
| | b. fo | mat of material: | | | |
| | | in written format | | | |
| ٠ | | in computer readable form | | | |
| | c. tin | ne of filling/furnishing: | | | |
| | | contained in the international application as filed. | | | |
| | | filed together with the international application in computer readable form. | | | |
| | | furnished subsequently to this Authority for the purposes of search. | | | |
| 3. | (| in addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished. | | | |
| 4. | Addi | tional comments: | | | |
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| | Вох | No. II Priority | | | |
| 1. | (| The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where equired, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43 <i>bis</i> .1 and 64.1) is the claimed priority date. | | | |
| 2. | l | This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43 <i>bis</i> .1 and 64.1). Thus for the purposes of this opinion, the international illing date indicated above is considered to be the relevant date. | | | |
| 3. | Addit | ional observations, if necessary: | | | |

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No. PCT/EP2005/053790

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Yes: Claims

1-9

No: Claims

Inventive step (IS)

Yes: Claims

No: Claims

1-9

Industrial applicability (IA)

Yes: Claims

1-9

No: Claims

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

- D1: WO 03/012669 A (ALCATEL; WENGROVITZ, MICHAEL; NELSON, ANDREW) 13 February 2003 (2003-02-13)
- D2: GUTTMAN E ET AL: "RFC 2608 Service Location Protocol, Version 2" IETF NETWORK WORKING GROUP, June 1999 (1999-06), XP002193190
- The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent claims 1 (method) and 9 (system) and dependent claims 2-8 does not involve an inventive step in the sense of Article 33(3) PCT, due to the following reasons:
- 1.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):

A method of providing service resolution between a calling subscriber A and a called subscriber B of a telecommunications network, wherein call of a calling subscriber device A of calling subscriber A includes content for at least capabilities C1 and C2 (page 5, lines 11-12) and called subscriber B (fig. 2; PC "32") is capable of only a subset of the capabilities C1 and C2, comprising the steps of:

the calling subscriber device A requesting a call with capabilities C1 and C2 (page 5, lines 10-12; page 2, lines 27-33) and

the called subscriber device B splitting the media received and sending the media corresponding to the subset capability for which is not capable, to a peripheral device for processing (page 9, line 34-page 10, line 1; page 14, lines 17-19; page 14, lines 24-26).

Therefore D1 differs from the subject matter of claim 1, in that it does not disclose the feature defined in claim 1 of:

the called subscriber device B broadcasting a signal to at leat one peripheral device

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (SEPARATE SHEET)

International application No.

PCT/EP2005/053790

requesting a response from the devices that are capable of the subset capability and responding of a peripheral device that has the requested capability.

The solution as defined by the differing feature of claim 1 solves the problem of how to discover the peripheral devices which have the missing capability required to complete the call.

However this differing feature of claim 1 is described in document D2, which discloses the IETF RFC standard for the Service Location Protocol. According to D2, a user agent hosted in a discovering device, multicasts a request for a service-capability. The service agents, hosted in devices capable of the requested services, respond to the multicast request (see D2, page 5, paragraph 3). Thus, D2 teaches the use of the differing feature as providing the same advantages and solving the same problem as in the present application. The skilled person would therefore regard it as a normal option to include this feature of D2 in the method described in D1, in order to arrive at the method of claim 1.

The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent system claim 9, which therefore is also considered not inventive.

2.2 Dependent claims 2-8 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step.

(19) World Intellectual Property Organization

(43) International Publication Date 11 May 2006 (11.05,2006)

International Bureau



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3 November 2004 (03.11.2004) U

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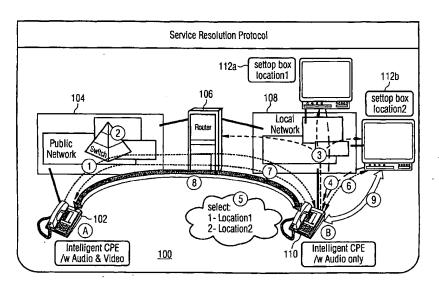
- (74) Common Representative: SIEMENS AKTIENGE-SELLSCHAFT; Postfach 22 16 34, 80506 München (DE).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
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Published:

with international search report

[Continued on next page]

(54) Title: SYSTEM & METHOD FOR SERVICE RESOLUTION



(57) Abstract: Providing service resolution between a calling subscriber Λ and a called subscriber B of a telecommunications network, wherein a call of a calling subscriber device Λ of the calling subscriber Λ includes content for at least capabilities C1 and C2 and called subscriber device B is capable of only a subset of the capabilities C1 and C2. The calling subscriber device Λ requests a call with the capabilities C1 and C2. The called subscriber device B broadcasts a signal to at least one peripheral device and requests a response from devices that are capable of the subset capability. A peripheral device responds that it has the requested subset capability. The called subscriber device B splits the media received and sends the media corresponding to the requested subset capability to the peripheral device for processing.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Title

System & Method for Service Resolution

5 Description

An incoming call for an end point addresses capabilities that the end point may fulfill. If an end point does not possess the capability, the call may be rejected, or some aspects of the call, specific to that capability shall not be processed and negotiated.

The multiple capabilities addressed in a call may be present
in different entities, but not accessible from one particular
entity. For example, a voice only device, may receive a call
with voice plus video. However, there may be a device such as
intelligent-TV in the periphery that may fulfill some aspect
of the call but not all. On the other hand, such a
intelligent-TV is not equipped with a microphone and handset.

Intelligent-TV is not equipped with a microphone and handset. Still further, the phone lacking the graphic display can also not fulfill all aspects of the call.

Another example is when an incoming call requires a certain codec (e.g. G729x), where at the terminating side, the phone lacks the corresponding codec, but the existing PC in the network is capable of the required codec.

Currently, multiple calls are used to connect to multiple
devices when the incoming call requires multiple
capabilities. For example, an A-side user may create a voice
call from his PC to a user-B's phone and create a video call
from the same PC to user-B's PC to provide voice and video at
the same time. These are two separated calls.

Another manner in which multiple call capabilities were handled was that, when the incoming call requested multiple capabilities, the capabilities had to be negotiated down. For example, the end point would negotiate which capabilities

could be left out and still be acceptable by the calling party. In other instances, certain capabilities could be substituted for others.

5 Currently, it would be better to have a device that has all possible capabilities that the user or his call partner may wish to use in a call.

Summary Of The Invention

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Providing service resolution between a calling subscriber A and a called subscriber B of a telecommunications network, wherein a call of a calling subscriber device A of the calling subscriber A includes content for at least capabilities C1 and C2 and called subscriber device B is

capable of only a subset of the capabilities C1 and C2. The calling subscriber device A requests a call with the capabilities C1 and C2. The called subscriber device B broadcasts a signal to at least one peripheral device and requests a response from devices that are capable of the

subset capability. A peripheral device responds that it has the requested subset capability. The called subscriber device B splits the media received and sends the media corresponding to the requested subset capability to the

25 peripheral device for processing.

Brief Description Of the Drawings

Figure 1A illustrates the invention, and

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Figure 1B illustrates a variant of the invention.

Detailed Description

In general, the invention provides a method for addressing the multiple capability request of an incoming call.

First, a call is initiated from a device A, with capabilities c1, c2,..., cn, for example, and terminates to an intelligent device B.

- The device B is incapable of, for example, capability c2. Thus, the device B attempts to share the capability c2 of another device to handle the call using following methodology.
- 10 In the invention a send service resolution protocol, i.e. broadcast request, is sent to all devices in the periphery. Essentially, the request asks "who has the capability c2?".
- Then, the invention awaits for a response. This may be done using a supervising response mechanism, such as a timer.

Optionally, a display displays the existing list of devices capable of c2 to the user to choose from. Once the user has made a choice (device C), the enhanced capability (c1, c2 \dots

20 cm) shall be indicated to the originating call-partner (device A).

To continue, upon call-acceptance, the media streams are split into streams S1 (referring to c1,..cn) and S2 $^{\circ}$

25 (referring to c2) streams. However, this is not the same as separated calls.

The media-stream part (S1) that can be handled by the device B, is processed. The media-stream part (S2) that cannot be 30 handled by the device, is processed by device C.

Next, the signaling supporting the S2 stream between devices B and C, is handled strictly between B and C. Device A has not notice of the involvement of C. In other words, the process is transparent to device A.

A potential application for the invention is to translate capability. For example, an incoming call may require a

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certain capability (e.g. codec) to be applied for the media. The device the user may wish to use to accept the call, may have no such capability (e.g. codec). In this case, the device sends an SRP to locate another network-entity, which can translate (transcode). If one or more entities respond to this SRP, then the device can now offer this capability to the caller.

Figure 1A illustrates the service resolution protocol 100.

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The device A 102, shown here as CPE A, requests a call with video & audio. This is generally indicated by signal path (1).

- 15 A public network 104, which may contain a Telco switch, routes the call to a subscriber behind the router 106 (shown as CPE B). This is indicated generally by signal path (2).
- A local network 108 receives the call request. The device B 110, here CPE-B, in this example, does not have video capablity, for example, and hence broadcasts a "service resolution protocol" in the local network as indicated by signal (3).
- All devices, or a subset thereof, with requested capability (video) respond. This may be, for example devices 112a or 112b, etc., which are shown here to be television or displays controlled by respective set top boxes (STB). This is indicated here generally by signal (4).

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The user, not shown, is alerted and the devices with the desired capability are displayed for selection. This optional feature is indicated generally by reference (5). In the alternative, the invention may select the device

35 automatically for the user.

After the user has selected the device (implicitly accepting the call), the device B 110 opens a signaling to reserve the

resource for video stream. This is indicated in the figure as signal (6). Here, device 112b was selected, although any device may be selected.

- Next, the device B 110 acknowledges the request from device A 102 for the requested capabilities. This is indicated generally by signal (7).
- Once the connection is established and the devices selected,

 the device A 102 starts the media stream over the media
 channel to device B 110. This is indicated generally by
 signals (8).
- Now, device B 110 splits the media received. In this
 example, the audio and video are split and processed by the
 different devices. In this case, the audio is processed by
 device B 110 and the video is processed by device 112b. This
 is generally indicated by signal 9.
- Figure 1B illustrates a variant on the above. Here, a central entity in the network, manages the available resources in the network. The device A requests a call with video & audio, as shown generally by signal (1).
- 25 Signal (2) illustrates that the public network finds the route to sub B and since sub B's profile indicates "no support for video", it activates a service agent. A signal (3) indicates that the service Agent is activated
- 30 The service Agent initiates SARP to all devices resolved from B's profile analysis (C1 & C2). This is indicated generally by signal (4).
- As indicated generally by (5), devices 112a, 112b (shown here 35 as C1 & C2) reserve resources (video) and send an acknowledgement signal.

The Service agent informs device B of an incoming call, with the option of devices 112a, b (Cl or C2) as a complementary video service. This is indicated generally by reference (6).

- 5 The user optionally selects devices 112a, b (C1 or C2) (or none) and accepts the call toward service agent. This is indicated generally by reference signal (7).
- The selected device (here, 112b C2) is signalled to

 10 participate in the active call as illustrated by signal (8).

 Device 112a (C1) is released from this call (not shown).

Then the device 102 (CPE-A) starts video audio streaming as indicated by signals (9).

The service agent splits the audio to device B 110 (CPE-B), as indicated by signal (10), and the video to device 112b (C2) as indicated by signal (11).

15

- This invention provides a method and apparatus for sharing the resources and capabilities that are spread in various devices. Using this methodology, all available capabilities "in multiple entities" can be presented as "in one entity".
- The need to establish separated calls to address different capabilities in different devices is, thus, obsolete.

This method can be realized using a new standard protocol controlled by the concerned device (presented in example 1 30 CPE-B).

Claims

1. A method for providing service resolution between a calling subscriber A and a called subscriber B of a telecommunications network, wherein a call of a calling subscriber device A of the calling subscriber A includes content for at least capabilities C1 and C2 and called subscriber device B is capable of only a subset of the capabilities C1 and C2, comprising the steps of:

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the calling subscriber device A requesting a call with the capabilities C1 and C2,

the called subscriber device B broadcasting a signal to at

15 least one peripheral device requesting a response from

devices that are capable of the subset capability,

responding of a peripheral device that has the requested subset capability, and

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the called subscriber device B splitting the media received and sending the media corresponding to the requested subset capability to the peripheral device for processing.

- 25 2. The method according to any of the preceding claims further comprising the step of routing the call to the called subscriber device B.
- The method according to any of the preceding claims
 further comprising the step of receiving the call request.
 - 4. The method according to any of the preceding claims further comprising the step of alerting the called subscriber device B to the peripheral device with the desired capability.

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- 5. The method according to any of the preceding claims $\,$ further comprising the step of displaying the peripheral device for selection.
- 5 6. The method according to any of the preceding claims further comprising the step of the peripheral device opening a signaling to reserve the resource for video stream.
- 7. The method according to any of the preceding claims
 10 further comprising the step of acknowledging the request from the calling subscriber device A for the requested capability.
 - 8. The method according to any of the preceding claims further comprising the step of starting a media stream over a media channel from the calling subscriber device A to the called subscriber device B.
 - 9. A system that carries out the method according to any of the preceding claims.

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location2 settop box Intelligent CPE /w Audio only <u>(</u> Local Network settop box location1 108 Service Resolution Protocol select: 1- Location1 2- Location2 Router ∞ Intelligent CPE /w Audio & Video Public Network FIG 1A

ERSATZBLATT (REGEL 26)

settop box ocation2 (2) Intelligent CPE /w Audio only 3 (<u>m</u> settop box location1 LAN Service Resolution Protocol supported by switch 1- Location1 2- Location2 select: 100 service agent (5) /w Audio & Video Intelligent CPE 7 တ C1 video C2 video B profile: associate with: × Public Network

FIG 1B

ERSATZBLATT (REGEL 26)

INTERNATIONAL SEARCH REPORT

International Application No PCT/EP2005/053790

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H04L29/06 H04M H04M7/00 According to International Patent Classification (IPC) or to both national classification and IPC Minimum documentation searched (classification system followed by classification symbols) HO4L HO4M IPC 7 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the International search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX C. DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. Υ 1-9 WO 03/012669 A (ALCATEL; WENGROVITZ, MICHAEL; NELSON, ANDREW) 13 February 2003 (2003-02-13) abstract page 2, line 15 - line 33 page 5, line 1 - line 34 page 9, line 35 - page 12, line 9 page 14, line 17 - line 26 GUTTMAN E ET AL: "RFC 2608 - Service Location Protocol, Version 2" Υ 1-9 IETF - NETWORK WORKING GROUP, June 1999 (1999-06), XP002193190 page 3, paragraph 1 page 5, line 1, paragraph 3 - line 19 Further documents are listed in the continuation of box C. Patent family members are listed in annex. Special categories of cited documents: "T" later document published after the international filing date or priority date and not in conflict with the application but clied to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance invention "E" earlier document but published on or after the international filing date "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 20 October 2005 11/11/2005 Name and malling address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016 Karavassilis, N

INTERNATIONAL SEARCH REPORT

International Application No PCT/EP2005/053790

| A EP 1 148 688 A (TELEFONAKTIEBOLAGET L M ERICSSON) 24 October 2001 (2001–10–24) paragraph '0060! – paragraph '0063! claims 1–9 | | ation) DOCUMENTS CONSIDERED TO BE RELEVANT | |
|---|------------|--|-----------------------|
| ERICSSON) 24 October 2001 (2001-10-24) | Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| | A | ERICSSON) 24 October 2001 (2001-10-24) | 1-9 |
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/EP2005/053790

| Patent document cited in search report | | Publication date | | Patent family member(s) | Publication date |
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